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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/605,840 | 10/30/2003 | Itzhak Bentwich | 050992.0300.CPUS11 | 2839 |

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| SHIN, DANA H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1635 | |

DATE MAILED: 12/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/605,840 | BENTWICH, ITZHAK | |
| | Examiner | Art Unit | |
| | Dana Shin | 1635 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *21-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10-6-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments/Election/Restrictions*

Applicant's election with traverse of SEQ ID NO:3754 in the reply filed on October 24, 2006 is acknowledged. The traversal is on the ground(s) that up to ten sequences are permitted in a case. This is not found persuasive because one nucleic acid sequence legitimately constitutes "up to ten" sequences.

The requirement is still deemed proper and is therefore made FINAL.

### *Status of Claims*

Claims 1-20 have been cancelled, and claims 21-40 have been added.

Accordingly, claims 21-40 are pending and are currently under examination on the merits.

### *Information Disclosure Statement*

The information disclosure statement filed on October 3, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to as Citation No. 2930 has not been considered.

***Priority***

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed applications fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application, because the instantly claimed SEQ ID NO:3754 was not disclosed. It is noted that applicant has asserted that SEQ ID NO:3754 corresponds to the sequence of VGR411 (see page 6 of Remarks). However, it is found that this asserted "VGR411" does not exist in any of the prior-filed application as they were originally filed. In view of the foregoing, the benefit of the priority to any of the prior-filed applications is denied and the instant filing date, August 28, 2003, will be the effective filing date for the instant case.

If applicant believes that the instantly elected invention SEQ ID NO:3754 is adequately described and supported in any of the prior-filed applications, applicant is encouraged to point out the particulars in response to this Office action.

***Specification***

The disclosure is objected to because of the following informalities: The title of the instant application as well as the abstract contain the term, "novel". The title as well as the abstract of a patent application should be descriptive of the claimed subject matter, which is

presumed to be novel. See M.P.E.P. 606. Accordingly, the term "novel" is not descriptive of the claimed subject matter in the instant case because it is obvious that claimed invention be novel.

Appropriate correction is required.

### *Claim Objections*

Claim 28 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 24. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In the instant case, both claims 24 and 28 are drawn to isolated nucleic acids consisting of 18 to 24 nucleotides of SEQ ID NO:3754. Since both sets of claims expressly recite the identical structural limitations, it is concluded that claims 24 and 28 are so close in content that they both cover the same invention.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 21, 24-25, 28, and 31-34 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The claims are drawn to an isolated nucleic acid consisting of at least 18 nucleotides of SEQ ID NO:3754.

The claimed nucleic acid is not supported by a specific asserted utility because the disclosed uses of the nucleic acid are not specific and are generally applicable to any nucleic acid. The specification states that the isolated nucleic acid may be useful as probes for selectively detecting expression of at least one gene (paragraphs 0029-0030) or the nucleic acid can be used to create a recombinant nucleic acid which is incorporated into a vector (paragraph 0013) or to produce an anti-viral substance capable of neutralizing the viral RNA, including production of immunologically neutralizing agents (paragraphs 0031-0033). The specification also describes that knowledge gained from the isolated nucleic acids may be useful in preventing and treating viral diseases (paragraph 0010). All of these asserted uses described in the instant specification are generally applicable to a myriad of isolated nucleic acids, and therefore, the instantly claimed isolated nucleic acid lacks a specific utility.

Claims 39-40 are rejected under 35 U.S.C. 101 because the claims embrace two different statutory classes of invention. Such claims should also be rejected under 35 U.S.C. 101 based on the theory that the claim is directed to neither a "process" nor a "machine," but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. See *In Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990) at 1551.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 39-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a gene expression inhibition system comprising the vector and a means for inserting said vector into a cell.

A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *In Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. 112, second paragraph. See also MPEP §2173.05(p).

Claims 21, 24-25, 28, and 31-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24-25, 28, and 31-40 depend from claim 21, which recites "(c) a sequence at least 54/80 identical to (a) or (b)" in line 5.

It is unclear what constitutes the sequence recited in claim 21 (c) because the numerical value "54/80" is not properly defined within the claim or in the instant specification. Accordingly, one skilled in the art cannot ascertain the metes and bounds set forth by the isolated nucleic acid comprising "(c) a sequence at least 54/80 identical to (a) or (b)" , thus rendering claim 21 and its dependent claims indefinite.

Further, claim 25 also contains "54/80" in line 5 and claims 33-34 contain "17/21", whose definitions are not set forth in the instant specification.

Claim 21 specifically recites "An isolated nucleic acid consisting of 18 to 120 nucleotides wherein the sequence of the nucleic acid comprises:" in lines 1-2. Claim 21 and its dependent claims are considered ambiguous and internally inconsistent because the transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. See *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948). A claim which depends from a claim which "consists of" the recited elements or steps cannot add an element or step. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, for example, *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004). Since the claim contains two conflicting transitional terms, the instantly claimed invention is considered ambiguous and vague. For examination purpose, the examiner will construe the claim 21 to read on any nucleic acid having at least 18 and at most 120 nucleotides of SEQ ID NO:3754.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21, 24-25, 28, and 31-34 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific utility or a well-

established utility for the reasons set forth above on page 5 herein, one skilled in the art clearly would not know how to use the claimed invention.

Claims 39-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are drawn to gene expression inhibition systems consisting of 18 to 120 nucleotides of SEQ ID NO:3754 (claim 39) and consisting of SEQ ID NO:3754 (claim 40).

As evidenced by the sequence listing, SEQ ID NO:3754 consists of 1623 nucleotides in length. Unlike probes claimed in claims 37-38, gene expression inhibition systems must impart an inhibitory function as the patentability weight is given to the preamble language.

The factors to be considered in determining whether undue experimentation is required are summarized *In re Wands*, 858 F.2d 731,737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). The Court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue', not 'experimentation'." (Wands, 8 USPQ2d 1404). There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction

provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The instant specification is found to contain no disclosure relevant to gene expression inhibition systems comprising the isolated nucleic acid, wherein the nucleic acid consists of 18 to 120 nucleotides of SEQ ID NO:3754 or the entire SEQ ID NO:3754.

Since the art of inhibiting gene expression comprising an isolated nucleic acid construct in a cell is recognized to be unpredictable, due to the difficulties with accessibility and unpredictable kinetics of nucleic acids inside a cell, one skilled in the art would require specific guidance/direction in order to make/use the instantly claimed invention. See for example review article by Opalinska et al. (*Nature Reviews Drug Discovery*, 2002, 1:503-514), page 511.

*In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991), the Court ruled that a rejection under 35 U.S.C. 112, first paragraph for lack of enablement was appropriate given the relatively incomplete understanding in the biotechnological field involved, and the lack of a reasonable correlation between the narrow disclosure in the specification and the broad scope of protection sought in the claims.

In view of the foregoing, the instant disclosure does not provide any guidance required to overcome the art-recognized unpredictability of using nucleic acids to inhibit gene expression in a cell. One skilled in the art cannot predict that the claimed nucleic acids will constitute gene expression inhibition systems, because such nucleic acids have not been demonstrated to show inhibitory effects in a cell. It is clear that based on the state of the art, in the absence of experimental evidence, no one skilled in the art would accept the assertion that the gene expression inhibition systems would be used without undue experimentation.

In light of the above, undue experimentation would have been needed to make and use the claimed invention based on the content of the disclosure (i.e., amount of direction and existence of working examples provided by the inventor) and the state of the prior art, the level of one of ordinary skill, and the level of predictability in the art. In view of all these factors and the totality of the teachings that the activity of nucleic acids inside a cell are unpredictable, undue experimentation would be required of the skilled artisan to practice the invention commensurate with the entire scope of the claims, thus claims 39-40 are not enabled.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 21, 24-25, 28, and 35-38 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 8, and 12 of copending Application No. 10/536,560. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter in the copending Application No. 10/536,560 overlaps with that in the instant application. The specification of Application No. 10/536,560 discloses SEQ ID NO:871, whose nucleotides 1-84 are RNA equivalent of nucleotides 214-297 of the instant claimed SEQ ID NO:3754. Accordingly, the structural requirements and limitations recited in claims 1, 8, and 12 of the copending application in light of the specifically disclosed sequence SEQ ID NO:871 render the claimed subject matter in claims 21, 24-25, 28, and 35-38 obvious. It would have been obvious to one of ordinary skill in the art to make the isolated nucleic acid/probe/vector by selecting a specifically disclosed embodiment (SEQ ID NO:871) that supports the instantly claimed subject matter, because SEQ ID NO:871 is disclosed as being a preferred embodiment in the copending application No. 10/536,560.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Conclusion***

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Shin whose telephone number is 571-272-8008. The examiner can normally be reached on Monday through Friday, from 8am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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